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ABSTRACT

Environmental education ideally involves a holistic integration of all school subjects, but in reality the curriculum structure is very segmented. Traditional approaches to the study of environmental degradation have not recognized the interrelatedness of the system: problems in the biosphere have been addressed from the perspective of the sciences; reasons for these problems have been dealt with from the perspective of the humanities. These specialized perspectives are too isolated. They need to be integrated into a holistic system that fosters an intuitive sense of the behavior of the whole system. The set of environmental education guidelines for pedagogy, content and structure offered in this paper emphasizes awareness, knowledge, and skills, and provides a procedural framework that can help students move from the initial stages of awareness to action based on sound environemtnal attitudes. (BZ)

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Social Studies: A Crucial Component of Holistic Environmental Education

by

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It is not uncommon to hear reports on issues of environmental degradation on the news each night. Although society has been faced with such issues for a number of decades, it has yet to adopt a meaningful long-term approach to resolving environmental issues. As educators we must ask ourselves how we might prepare future generations to deal positively with existing problems and eliminate the occurance of such issues in the future.

Traditionally environmental problems have been dealt with from very segmented, specialized perspectives of the sciences or humanities (Cotgrove, 1982; Miller, 1982). Unfortunately such isolated approaches do not recognize the interrelated aspects of the biosphere or of the resultant environmental degradation. Problems are defined too narrowly in time and space, simple solutions are sought for complex problems, and negative trade-offs of solutions are not considered (Bybee, 1979a). The ability to recognize the various interacting parts of the system and develop an intuitive sense for the behaviour of the whole system is essential. A holistic perspective that integrates science, technology and society in relation to the environment needs to be encouraged (Bybee, 1979b).

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Holistic Environmental Education

Educators can play a key role in promoting such a holistic environmental ideology. In order for students to gain a holistic perspective that integrates a variety of viewpoints, our segmented approach to education needs to be modified. In the 1960s and 1970s environmental education was introduced as a tacked-on isolated unit in either social studies or science, thereby fostering a one-sided approach to environmental issues (Sale and Lee, 1972; Swanson,1975). Environmental education should not be segmented since it is integrative in nature, incorporating all disciplines so as to encourage a holistic perspective of the biosphere. In the words of McInnis (1982, p.210) "Environmental education is an attempt to bring together our fragmentary disciplinary mode of thinking".

Ideally, holistic environmental education involves an integration of all school subjects. Realistically, educators are faced with a curriculum structure that is very segmented, each subject being dealt with as a separate entity. Although such obstacles exist, it is possible, however, to implement an environmental program that works within existing curriculum constraints. Such a program can be initiated by classroom teachers integrating a number of subjects they are responsible for, by a subject specialist working with other subject specialists, or by individual teachers expanding the traditional boundaries of their particular disciplines. Such action will help to promote a holistic environmental ideology

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and provide a realistic first-step towards further integration of all subjects.

Social Studies as a Major Component

Since problems of environmental degradation are underscored by science-related social issues, the teacher of social studies should be instrumental in introducing holistic environmental education into the curriculum. When society makes use of the natural environment to maintain or improve the quality of life, it does so within a system of ideals which reflect the dominant attitude towards people and nature. An environmental crisis is, therefore, a crisis that involves people and their society. This is very important for teachers to be aware of, for as Swanson (1975) points out,

> Only by recognition of the centrality of man in the environment and keeping him constantly in sharp focus can we begin to see our environmental problems in perspective (p. 87).

In the early 1970s environmental programs emphasized the natural sciences, while almost totally ignoring the human dimension (Swanson, 1975). By incorporating the humanistic perspective, balance with the natural sciences is maintained. The Science Council of Canada (1984) has recently recognized the need to integrate science with social studies in calling for greater ties and emphasis being placed on curricula dealing with science, technology and society. Such a balance necessarily places more emphasis on the value dimension of

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environmental issues. The key is to incorporate the social context of science, technology, and the environment so as to encourage responsible citizenship in dealing with science-related social issues. To further this goal Peters (1981) feels,

> Social studies and environmental education should be fused into an organized, planned effort to affect human attitudes and behaviour regarding relationships among/between peoples of the Earth and their dependence upon nature for continued survival and the improvement of our species' quality of life (p. 11).

Content

By giving the social studies curriculum an environmental basis, thereby forming an essential bridge between the natural environment and society, the traditional goals of social studies need not be compromised. For example, twenty generalizations believed to make the greatest contribution to the goals of social studies in grades four, five, and six have been determined by Barnes, Rivener, Smith, and Waln (1978-79). These goals were determined by ranking the generalizations identified by Roth (1970) in terms of their perceived contribution to the goals of social studies education, as stated in the Social Studies Curriculum Guidelines adopted by the National Council of Social Studies in 1972. These social studies generalizations, relating to economics and culture, ecology, and management emphasize society's interdependence with natural resources, and the need for an environmentally literate citizenry who can live

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in harmony with the environment, respecting the rights of others. Hodgetts and Gallagher (1978), in their book, Teaching Canada For The '80s, reinforce these very same issues.

These social studies generalizations correspond directly to the four major objectives of an environmental curriculum, as developed by the Hawaii State Dept. of Education (1981). The four major objectives are:

1. Students should develop an awareness of themselves in relation to their environment (i.e., how they influence the environment and vice-versa), and the need for wise use of the environment;

2. Students should develop knowledge of various aspects of the natural environment and the interrelatedness of human beings, environmental concerns and the social, political, cultural, and economic structures;

3. Students should develop skills in coping with environmental problems;

4. Students should develop attitudes and values which will help them live in harmony with the environment.

In order to attain these objectives, attention must be given to environmental awareness, knowledge, skills, and attitudes from kindergarten to grade twelve. The Hawaii State Dept. of Education (1984) has developed the scope and sequence of such a program, identifying the stress each of the four areas should receive in the various grade levels. A diagram of this scope and sequence is illustrated in Figure 1.

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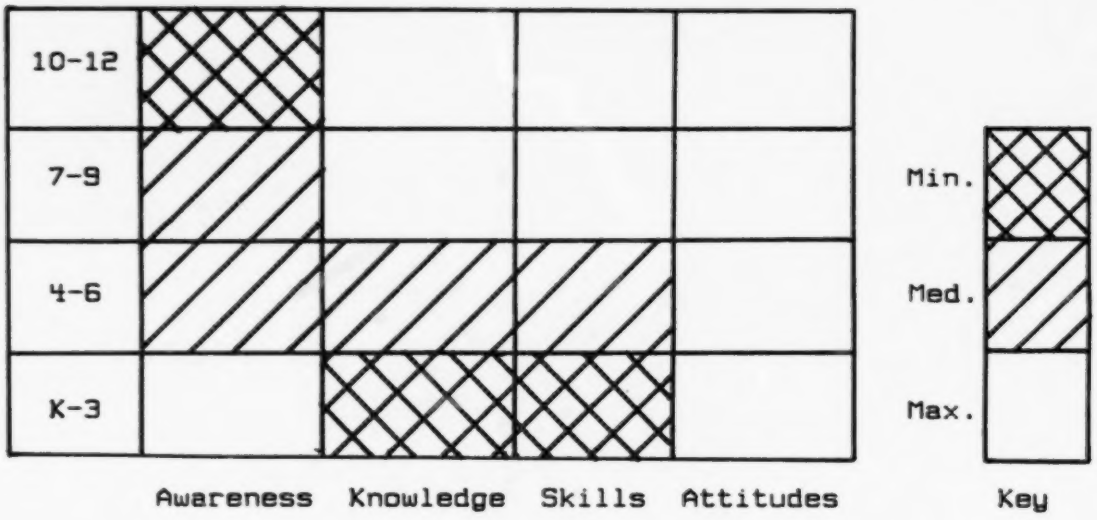

Figure 1: Curriculum Scope and Sequence (Hawaii State Dept. of Education, 1981, p. 89)

As Figure 1 shows, the emphasis given to awareness, for example, in grade four to six should be of a medium nature after it has been given maximum attention in the lower grades. Stress on both knowledge and skills increases in the upper elementary grades so that these areas receive equal stress as awareness, while environmental attitudes receive maximum attention right from kindergarten through to grade twelve.

Although this scope and sequence was designed for a separate environmental program, it is valuable for a holistic environmental curriculum since it shows that by gradually changing the emphasis placed on awareness, knowledge, and skills, while maximizing attitudes throughout, a program can help students move from the initial stages of awareness to action based on sound environmental attitudes.

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This is a very important consideration since one of the major goals of environmental education is for students to develop a sense of citizenship towards maintaining a healthy environment. As technology has become more sophisticated our society has removed itself further and further from our natural environment. In doing so, people have become accustomed to leaving decisions and actions up to the 'experts', a select few. To encourage more active participation educators should do more than just teach children about the natural environment. The curriculum should embrace new experiences that involve students in the critical analysis of the social values and interactions that underly environmental degradation (Ames, 1971).

Through his studies, Keach (1973) has found that,

> Many of the environmental programs today are 'awareness oriented'. In the absence of a structure of activities leading from the 'awareness' to the 'action' stage, much of the effectiveness of an environmental program is lost (p. 25).

The environmental programs that have been 'awareness oriented' are often heavily subject-centered, thereby lacking an integrative objective. Environmental educators such as Ames (1971), Keach (1973), Ramsey, Hungerford, and Tomera (1980), Sale and Lee (1972), and Stapp (1978) all agree that subject-matter knowledge is necessary but not sufficient to promote action behaviour. The emphasis is on the child participating, inquiring, and discovering in the environment so that s(he) might move from awareness to action.

If environmental programs encourage action behaviour, it is necessary for educators to teach critical thinking skills concurrently. However, critical thinking is a skill that often lacks recognition or proper attention (Beyer, 1985). In support of Beyer, Goodlad (1984) found that not even one percent of instructional time involves students in open responses, encouraging reasoning or student opinions. Since environmental problems involve a number of controversial issues, students must learn to analyze various viewpoints and the repercussions that follow when action is taken. If students are taught to question information, and further project their attention to future repercussions resulting from action based on that knowledge, many detrimental interactions with the environment may be avoided in the future.

In order to bring about environmental awareness, knowledge, skills and attitudes, as well as critical thinking and action behaviour, the curriculum content can be organized into three dimensions so as to give continuity and direction to environmental education. Learning usually begins with the Natural Ecosystem. Building on these studies, the environmental curriculum can then focus on the Urban Ecosystem and Society's Interaction With the Natural Environment. This is an important dimension since it helps children bridge the gap between the natural world and the urban-centered environment (O'Connor and McGlauflin, 1982). In such studies,

> The urban environment is not viewed as a negative, non-wilderness area, but as a human-dominated environment, where people can learn to have a more moderate influence on their surroundings. They can adopt lifestyles that lead to a more harmonious relationship to the land and use their knowledge when making consumer choices and lifestyle decisions (O'Connor and McGlauflin, 1982, p. 5).

Falling out of studies centering on society's interaction with the biosphere is a consideration of Social Problems Related to the Environment. Such topics provide rich opportunities to incorporate critical thinking, value discussions, problem-solving and action behaviour.

While giving direction to environmental education, in general, these three dimensions can blend with and receive further clarification from a traditional 'expanding horizons' approach to social studies. As an example, O'Connor and McGlauflin (1982) have developed an urban environmental education program that corresponds to the expanding concept of the child, the child in his/her world, and people in their environment.

O'Connor and McGlauflin (1982) focus on the home, school and neighbourhood through a concerted effort to: understand the diversity of natural and human communities; consider the historical and cultural aspects of a community from an environmental perspective; explore the goods and services in a community and their relationship to the needs and wants as consumers; consider the transportation system's impact on land, people and natural resources; look at the water cycle

and the process of water consumption and treatment in the city; and explore the interaction between animals and plants in the urban environment and the dependence of cities on natural communities. Social and personal values are involved in studies that deal with recycling, the use of limited natural resources, urban-sprawl, water quality and soil erosion, and dominant environmental philosophies of other cultures such as native North Americans. The Project Nine to Five Resource Book, (Harper, 1975), is another excellent source of activities based on an expanding horizons approach. Although it is designed for the primary grades, many of the outdoor learning activities can be expanded for grades four to six.

Beyond the students' immediate environments of the home, school and community, an environmental social studies curriculum expands to consider regional, provincial, national and international concerns so that the intricate relationships of the global village, as well as pressing local concerns, can be brought into perspective. In structuring the social studies curriculum along these lines, various historical, geographical, economic, political, anthropological, sociological and psychological components may be incorporated so that an increasingly global perspective is developed in holistic environmental terms.

Pedagogy

In order to enhance social studies curricula that are

centered on the interface of science, technology and society, and science-related social problems, educators need to consider a variety of emphases and teaching methodologies. One of the most important considerations is to teach from an interdisciplinary perspective. Such an approach can be achieved by incorporating and encouraging knowledge and viewpoints from other subjects, and stressing concepts and relationships rather than topics and facts. This will help to alleviate structural limitations and promote a holistic perspective.

To help facilitate the teaching of holistic environmental education and the use of integrative techniques there are three very effective teaching methods that are commonly used. Each provides opportunities for incorporating environmental awareness, knowledge, skills, and attitudes, as well as critical thinking and action behaviour. Although these methods can be employed separately, they are often used in conjunction with each other. How and when each method is used will depend on the dimension and topic being investigated as well as teacher preference.

Outdoor/Enquiry Learning is used to expand the classroom so that learning occurs in the most advantageous location. This may necessitate trips to ponds or urban areas, or it may involve the class in activities just outside the classroom, exploring the schoolyard and/or the neighbourhood. On the other hand it recognizes bringing aspects of the outdoor environment inside if that subject matter can be studied

better in the classroom. With this method, as with the other two, emphasis is on student involvement.

In addition to Outdoor/Enquiry Learning, the use of Simulations is an effective means of promoting environmental education. Since Simulations typically deal with hypothetical situations, they provide an excellent 'safe' arena for exploring action behaviour options and repercussions. In doing so, Simulations provide a good opportunity to follow-up on Outdoor/Enquiry Learning.

The third method of teaching environmental education through social studies is the use of Case Studies that involve students in actual environmental issues. These studies are most effective when the students are involved in choosing a local issue that can be used to generate investigations, critical thinking and action behaviour on their part. This method has been used very effectively, often resulting in such changes as ongoing community conservation efforts or reformed state legislation (Hammond, 1983; National Wildlife Federation, 1982).

Whether a teacher decides to develop the dimensional theme or topic through Case Studies, Simulations and/or Outdoor/Enquiry Learning, a framework that helps develop the topic in a logical way is needed. Such a strategy must provide for inquiry learning, action behaviour and critical thinking. In Scotland the recognition of this need led to the development of a procedural framework similar to the one

outlined in Figure 2.

Procedural Framework	Potential Achievements At Each Step		
Start Topic	SKILLS	CONCEPTS	ATTITUDES
OBSERVATION What is the topic like?	Observe Record Classify	Sense of location	Appreciation of beauty
EVOLUTION How did it come to be like that?	Classify Weigh evidence	Sense of time	Role of individual in community
INTER-CONNECTIONS How is it linked to other items?	Evidence Analysis	Inter-relatedness Role of technology	Individual Community
ELEMENTS OF CHANGE What seeds of change can be seen?	Analyse & extrapolate Form opinion	Role of technology Political process	No single right answer Sense of respon-sibility
VIEWS ON GUIDANCE OF CHANGE How should it develop in the future?	Form opinion Discussion Critical thinking	Political process	No single answer Tolerance
	AN INFORMED VIEWPOINT		
ACTION BEHAVIOUR What can we do?	Problem-solving Critical thinking	Political process Citizenship	Sense of respon-sibility

Figure 2: A Procedural Framework (Adapted from Forbes and Smyth, 1984)

The first five steps form the elements described in the origional framework developed by Forbes and Smyth (1984). The sixth step, action behaviour, based on an informed viewpoint, was added to move students from the awareness stage to action behaviour and personal involvement. The right-hand column in Figure 2 notes that skills, concepts and attitudes come into play at each step.

Although the procedural framework appears to be linear in its progression, it should be recognized that all sorts of feedback loops are necessarily incorporated so as to enable new material to be gathered, if need be. Feedback loops may also be necessary to reinforce an item of knowledge which may seem more significant than when it was first encountered. Since each topic is different, the particular feedback loops and the extent to which they are used will depend on indivdual studies.

Conclusion

Taken as a whole, these environmental education guidelines for pedagogy, content and structure can help social studies teachers introduce holistic environmental education into the school curriculum. Given the present state of our environment and the lack of a meaningful long-tem approach to resolving issues of environmental degradation, the introduction of a curriculum that encourages a holistic environmental ideology appears to not only be prudent but crucial. By underscoring the current curriculum

with an environmental base, educators can work within their structural constraints while encouraging society to come to terms with environmental degradation, so as to make such issues a realization of the past.

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